

### **REMARKS**

This is in full and timely response to the Final Office Action mailed on February 13, 2004. Reexamination in light of the amendments and the following remarks is respectfully requested. Claims 22-28, 31-37, 40-46 and 49-52 are currently pending in this application, with claims 22, 32 and 41 being independent.

*No new matter has been added.*

### **Prosecution History**

Please note that the Office Action of July 28, 2004 is the third Final Office Action and the fifth Office Action overall on the merits, resulting in costly prosecution delays. A prompt conclusion of the prosecution resulting in the allowance of the claims would be greatly appreciated.

### **Drawings**

It is noted that no indication of acceptance of the drawings filed on March 16, 2001 has been provided in box 10 of the Office Action Summary (PTOL-326). Acknowledgement of acceptance of the drawings filed on March 16, 2001 is respectfully requested.

### **Substitute specification**

Please acknowledge receipt of the reline copy and clean copy of the substitute specification filed on July 3, 2002. Acknowledgement of entry of the substitute specification is also respectfully requested.

### **New non-final Office Action**

If the allowance of the claim is not forthcoming at the very least and a new grounds of rejection made, then a new non-final Office Action is respectfully requested.

**Entry of amendment**

It is noted that the amendment filed on August 24, 2004 is indicated within the Advisory Action of September 22, 2004 was not entered.

This amendment *prima facie* places the case in condition for allowance. Alternatively, it places this case in better condition for appeal. A new search and/or consideration is not required.

Accordingly, entry of this amendment is respectfully requested.

**Prematureness**

Applicant, seeking review of the prematureness of the final rejection within the Final Office Action, respectfully requests reconsideration of the finality of the Office Action for the reasons set forth hereinbelow. See M.P.E.P. §706.07(c).

**Rejection under 35 U.S.C. §103**

“The Patent and Trademark Office (PTO) has the burden of showing a prima facie case of obviousness.” *In re Bell*, 26 USPQ2d 1529, 1530 (Fed. Cir. 1993). “In determining the propriety of the Patent Office case for prima facie obviousness, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the proposed substitution or other modification.” *In re Taborsky*, 183 USPQ 50, 55 (CCPA 1974).

Claims 22, 24-26, 32, 34-35, 41, 43-44 and 50-52 were rejected under 35 U.S.C. §103 as allegedly being obvious over U.S. Patent No. 5,376,561 to Vu et al. (Vu) in view of Japanese Publication No. 11-265155 (Toshiba).

Claims 22, 24-26, 32, 34-35, 41, 43-44

This rejection of these claims is traversed at least for the following reasons.

The Office Action contends that a substrate comprised of an organic material and a metal *is not* found within Vu, and further contends that it would have been obvious to the skilled artisan to modify the semiconductor device of Vu to include the use of an organic material and a metal coated on a substrate as disclosed in Toshiba.

In response to these contentions, please note that the assertion found within the Office Action of *a substrate comprised of an organic material and a metal* fails to accurately represent the language found within the claims. Specifically, the claimed invention provides that the *product substrate is one of an organic material and a metal*.

“For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims.” *General Electric Co. v. Nintendo Co.*, 50 USPQ2d 1910, 1914 (Fed. Cir. 1999). In this regard, the specification discloses a product substrate 1 made of an *organic material* (substitute specification at page 6, lines 1-2). The specification alternatively discloses the use of a *metal plate* for the product substrate 1 (substitute specification at page 6, lines 19-24). Whereas the product substrate of the claimed invention can include an organic material or a metal, as shown hereinabove, it is not required within the claims for the product substrate to comprise both an organic material and a metal.

Moreover, *prima facie* obviousness of a claimed invention is established “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

Vu arguably teaches substrate 110 as a product substrate of an organic material such as a plastic (Vu at figure 5A, column 8, lines 65-66), wherein a thin film transistor 51 and pixel electrode 62 are adjacent the substrate 110 (Vu at figure 5A).

Regarding the teachings of Toshiba, that reference arguably teaches substrate 11 as a product substrate of an organic material such as a plastic (Toshiba at figure 5, Abstract), wherein a thin film transistor 23 and pixel electrode 24 are adjacent the substrate 11 (Toshiba at figure 5). Toshiba arguably teaches an aluminum film 12 on the plastic substrate 11 (Toshiba at figure 4(a)).

Arguably, substrate 110 of Vu is comparable with substrate 11 of Toshiba, thin film transistor 51 of Vu is comparable with thin film transistor 23 of Toshiba, and pixel electrode 62 of Vu is comparable with pixel electrode 24 of Toshiba.

But notwithstanding the presence of substrate 110 of Vu, which may arguably be a product substrate of plastic, the Office Action inexplicably attempts to associate a nitride release layer 36 of Vu (Vu at column 8, line 12) with the plastic substrate 11 of Toshiba.

In particular, the Office Action fails to show that the release layer 36 of Vu is considered in the art to be suitable for the purpose of a product substrate, especially considering that the release layer 36 is ultimately removed from the device of Vu (Vu at column 8, line 38). In addition, the Office Action fails to show that the plastic substrate 11 of Toshiba is a suitable replacement for the nitride layer 36 of Vu, especially taking into consideration the presence within Vu of the plastic substrate 110 (Vu at figure 5A).

The Office Action asserts that the skilled artisan would have replaced the release layer 36 of Vu with the plastic substrate 11 of Toshiba. Yet, it is unclear within the Office Action as to whether or not the plastic substrate 11 shown within figure 5 Toshiba is intended to co-exist along with the plastic substrate 110 shown within figure 5A of Vu, or if the plastic substrate 11 shown within figure 5 Toshiba is intended to replace the plastic substrate 110 shown within figure 5A of Vu.

Even still, that Vu might incorporate the plastic substrate 11 of Toshiba does not render the claims obvious when there is no suggestion of using the plastic substrate 11 of Toshiba in substantially the same manner as nitride layer 36 of Vu. See, for example, *In re Dillon*, 13 USPQ2d

1337, 1342 (Fed. Cir. 1989), and M.P.E.P. §2143.01, section “*The Proposed Modification Cannot Change The Principle Of Operation Of A Reference.*”

Thus, the Office Action fails to show why the skilled artisan would have been motivated to replace the nitride layer 36 of Vu with the plastic substrate 11 of Toshiba.

#### Claims 50-52

This rejection of these claims is traversed at least for the reasons provided hereinabove with respect to claims 22, 24-26, 32, 34-35, 41, 43-44 and for the following reasons.

The Office Action contends that the claimed feature of an adhesive layer being dissolvable to remove the manufacturing substrate makes that feature a product-by-process feature.

In response to this contention, the adhesive layer being dissolvable to remove the manufacturing substrate *is a structural feature of the adhesive layer*. However, the Office Action attempts to recast selected structural features found within the claims as process steps. Such a reconstruction is merely an attempt to redefine the invention in a manner different than from what is set forth within the claims. Such reconstruction is without authority under Title 35 U.S.C., Title 37 C.F.R., the M.P.E.P. and relevant case law; such reconstruction is therefore deemed improper.

Moreover, a "product-by-process" claim is one in which the product is defined at least in part in terms of the method or process by which it is made. *Atlantic Thermoplastics Co. Inc. v. Faytex Corp.* 23 USPQ2d 1481, 1488 (Fed. Cir. 1992). However, the adhesive layer being dissolvable to remove the manufacturing substrate is not a process step, but instead, is physical characteristic of the adhesive layer. *Physical characteristics are not process steps.*

“All claim features must be considered.” *Ex parte Petersen*, 228 USPQ 217, 218 (Bd. Pat. App. & Int. 1985). Exclusion of any claimed feature from consideration is also deemed improper. *In re Lowry*, 32 USPQ2d 1031 (Fed. Cir. 1994)(Board erred by denying patentable weight to data structure limitations). As a result, the mischaracterization of this feature of *the*

*adhesive layer being dissolvable to remove the manufacturing substrate* as product-by-process feature, along with an exclusion of this feature from consideration, is improper.

Claims 23, 33 and 42 were rejected under 35 U.S.C. §103 as allegedly being obvious over Vu in view of Toshiba and U.S. Patent No. 6,049,106 to Forbes.

This rejection of these claims is traversed at least for the reasons provided hereinabove with respect to claims 22, 24-26, 32, 34-35, 41, 43-44 and for the following reasons.

Within claims 23, 33 and 42, the manufacturing substrate is a glass substrate.

Within Forbes, the term "substrate" is to be understood as including silicon-on-insulator (SOI) or silicon-on-sapphire (SOS) technology, glass, quartz, silicon dioxide, other silicon-containing foundations, and other insulating structures (Forbes at column 2, lines 57-60). Forbes arguably teaches a thin film transistor 20 formed on substrate 22 (Forbes at figure 1, column 3, lines 4-5).

But recall, the Office Action cites element 30 of Vu as the manufacturing substrate 30 (Office Action at page 2), and contends that the manufacturing substrate 30 is removable for exposing the first side of the product substrate by leaving the product substrate and the thin film device.

However, Forbes fails to disclose, teach or suggest that the substrate 22 as removable for exposing the first side of a product substrate by leaving the product substrate and the thin film device 20. Instead, Forbes depicts the thin film device 20 on the substrate 22, while failing to show the removability of the substrate 22 from the thin film device 20.

Thus, Vu, Toshiba and Forbes, either individually or as a whole, fail to show why the skilled artisan would have been motivated to modify the teachings of Vu using the invention of Forbes.

Claims 27, 36 and 45 were rejected under 35 U.S.C. §103 as allegedly being obvious over Vu in view of Toshiba and U.S. Patent No. 6,057,234 to Yamazaki.

This rejection of these claims is traversed at least for the reasons provided hereinabove with respect to claims 22, 24-26, 32, 34-35, 41, 43-44 and for the following reasons.

Within claim 27, a moisture-proof buffer film is formed between the second surface and the thin film device. Within claim 36, a moisture-proof buffer film is formed between the second surface and the pixel array. Within claim 45, a moisture-proof buffer film is formed between the second surface and the electroluminescence device.

Figure 3(A) of Yamazaki arguably depicts a silicon oxynitride film, a silicon oxide film or silicon nitride film acting as a buffer film 302 is deposited on substrate 301 (Yamazaki at column 7, lines 66-67). However, Yamazaki teaches substrate 301 as a glass substrate 301 (Yamazaki at column 7, line 65).

But within independent claims 22, 32 and 41, the product substrate is one of an organic material and a metal, the product substrate has a first side and a second side opposed to the first side, and the manufacturing substrate is adjacent the first side.

Yamazaki arguably teaches a method for fabricating a semiconductor device. Nevertheless, an adhesive layer formed between the first side and a manufacturing substrate, and the manufacturing substrate that is removable for exposing the first side by leaving the product substrate are not found within Yamazaki.

Furthermore, Yamazaki fails to disclose, teach or suggest a manufacturing substrate adjacent the first side of a product substrate, since only a single substrate 301 is depicted within Yamazaki.

In addition, Yamazaki fails to disclose, teach or suggest a product substrate that is one of an organic material and a metal. As a result, Yamazaki fails to disclose, teach or suggest the buffer

film 302 formed between the second surface of a product substrate and a) a thin film device, b) a pixel array, or c) an electroluminescence device, wherein the product substrate that is one of an organic material and a metal.

Thus, Vu, Toshiba and Yamazaki, either individually or as a whole, fail to show why the skilled artisan would have been motivated to modify the teachings of Vu using the invention of Yamazaki.

Claims 28, 37, and 46 were rejected under 35 U.S.C. §103 as allegedly being obvious over Vu in view of Toshiba and U.S. Patent App. No. 2002/0164535 to Hoffend, Jr. et al. (Hoffend).

This rejection of these claims is traversed at least for the reasons provided hereinabove with respect to claims 22, 24-26, 32, 34-35, 41, 43-44 and for the following reasons.

Within claims 28, 37 and 46 the plastic for organic material of the product substrate is from the group comprising polyether sulfone resin, polyethylene terephthalate resin and ARTON resin.

Hoffend arguably teaches a thermal mass transfer donor element 100 that includes a donor substrate 110, a LTHC layer 112, a thermal transfer layer 114, and an interlayer 116 disposed between the LTHC layer and the thermal transfer layer 114 (Hoffend at figure 1a, paragraph [0021]). Donor element 102 includes a donor substrate 110, a light-to-heat conversion layer (LTHC) layer 112, and a thermal transfer layer 114 (Hoffend at figure 1b, paragraph [0021]). Donor element 104 includes a donor substrate 110, a LTHC layer 112, a thermal transfer layer 114, an interlayer 116 disposed between the LTHC layer and the thermal transfer layer, and an underlayer 118 disposed between the donor substrate and the LTHC layer (Hoffend at figure 1c, paragraph [0021]). Donor element 106 includes a donor substrate 110, a LTHC layer 112, a thermal transfer layer 114, and an underlayer 118 disposed between the donor substrate and the LTHC layer 114 (Hoffend at figure 1d, paragraph [0021]).



Nevertheless, an adhesive layer formed between the first side of the product substrate and a manufacturing substrate, and the manufacturing substrate that is removable for exposing the first side by leaving the product substrate are not found within Hoffend.

Hoffend arguably teaches an optional donor substrate 110 that can be a polymer film such as polyethylene terephthalate (Hoffend at paragraph [0033]). Hoffend arguably teaches receptor substrates suitable for use in displays such as *liquid crystal displays* or *emissive displays* that include rigid or flexible substrates that are substantially transmissive to visible light such as glass, indium tin oxide coated glass, low temperature polysilicon (LTPS), and *rigid plastic*. (Hoffend at paragraph [0071]). Hoffend arguably teaches that polymer substrates include a polyester base such as polyethylene terephthalate, polyethylene naphthalate (Hoffend at paragraph [0071]).

Yet, the Office Action fails to show why the skilled artisan would have been motivated to replace the nitride layer 36 of Vu with the receptor substrate of Hoffend.

Thus, Vu, Toshiba and Hoffend, either individually or as a whole, fail to show why the skilled artisan would have been motivated to modify the teachings of Vu using the invention of Hoffend.

Claims 31, 40 and 49 were rejected under 35 U.S.C. §103 as allegedly being obvious over Vu in view of Toshiba and U.S. Patent No. 6,458,613 to Bae.

This rejection of these claims is traversed at least for the reasons provided hereinabove with respect to claims 22, 24-26, 32, 34-35, 41, 43-44 and for the following reasons.

Within claims 31, 40 and 49, the adhesive layer is from the group comprising a polyimide, Teflon resin, silicon, germanium and metal.

The Office Action cites element 34 of Vu for the adhesive found within the claims for the above-identified application. In this regard, Vu describes element 34 as an oxide layer such as

SiO<sub>2</sub> (Vu at column 6, line 64). The Office Action admits that that Vu fails to disclose, teach or suggest element 34 as being an adhesive layer from the group comprising a polyimide, Teflon resin, silicon, germanium and metal (Office Action at page 9), and cites Bae for the features deficient within Vu.

Bae arguably teaches a method for manufacturing a liquid crystal display using a selective etching method. The Office Action cites layer 23 of Bae for the adhesive found within the claims for the above-identified application.

Bae arguably teaches that layer 23 has good adhesive property with amorphous silicon (Bae at column 1, lines 62-65). However, please note that Bae identifies layer 23 as being SiN<sub>x</sub> or SiO<sub>x</sub> layer (Bae at column 1, lines 62-63).

The Advisory Action mailed on September 22, 2004 contends that SiN<sub>x</sub> or SiO<sub>x</sub> reads on *the group comprising a polyimide, Teflon resin, silicon, germanium and metal* found within claims 31, 40 and 49 due to the transitional term “comprising” found within the preamble of independent claims 22, 32 and 41, and due to the presence of “silicon” within SiN<sub>x</sub> or SiO<sub>x</sub>.

In response to this contention, the use of SiN<sub>x</sub> or SiO<sub>x</sub> within Bae as the claimed adhesive layer is somewhat inconsistent with the assertions made within the Office Action in that the Office Action describes element 34 of Vu as an adhesive layer (Office Action at page 3), in that Vu describes element 34 as an oxide layer such as SiO<sub>2</sub>, in that the Office Action admits oxide layer 34 of Vu as failing to disclose, teach or suggest an adhesive layer from the group comprising a polyimide, Teflon resin, silicon, germanium and metal (Office Action at page 9), and in that the Office Action alternatively provides of SiN<sub>x</sub> or SiO<sub>x</sub> layer 23 of Bae for the adhesive layer notwithstanding the presence of SiO<sub>2</sub> layer 34 of Vu.

Even more troubling with this contention is that layer 23 of Bae is used as a gate insulating layer for an inverted gate field effect transistor having a gate electrode 21 (Bae at figure 2a, column 1, lines 62-63). Please note that Toshiba also depicts a gate insulating layer 22 for an inverted gate field effect transistor 23 having a gate electrode 21 (Toshiba at figure 5). Additionally

note that Vu depicts a gate insulating layer 48 (Vu at figure 4C) for a field effect transistor 51 having a gate electrode 50 (Vu at figure 4F).

But inexplicably, the Office Action attempts to associate a gate insulating layer 23 of Bae (Bae at figure 2a) with an oxide layer 34 of Vu (Vu at figure 4F), contending that the skilled artisan would have been motivated to replace the oxide layer 34 of Vu with the gate insulating layer 23 of Bae.

In addition, Bae arguably teaches that  $\text{SiN}_x$  or  $\text{SiO}_x$  layer 23 of Bae has a good adhesive property with an amorphous silicon (Bae at column 1, lines 63-65). However, the Office Action fails to show either a manufacturing substrate or a product substrate as amorphous silicon.

Like Vu and Toshiba, Bae fails to disclose, teach or suggest a product substrate having a first side and a second side opposed to the first side, wherein an adhesive layer is formed between the first side and the manufacturing substrate.

Thus, Vu, Toshiba and Bae, either individually or as a whole, fail to show why the skilled artisan would have been motivated to modify the teachings of Vu using the invention of Bae.

### **Conclusion**

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the amendments and remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753 or the undersigned attorney at the below-listed number.

Application No.: 09/808,957

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(80001-2050)

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

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Respectfully submitted,

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